PRESHIPMENT CHECK-LIST

NOVESPACE

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INTRODUCTION

This document is a check-list of the “Things to Bring” or “Things to Do” a few weeks before a Parabolic Flight Campaign.

This is not a contractual document, but only a list of suggestions which is there to help you in the administrative, logistical and technical tasks that remain for you to do before the campaign.

For more details about the deadlines which are contractual, please check the documents that have been sent in the kick-off email by NOVESPACE and especially in the “Practical and Technical Information” document (DI) concerning your campaign.

VOCABULARY

RQ	Requirements
GDL	Guidelines
ITF	Interfaces
ESDP	Experimental Safety Data Package
GFI	Ground Fault Interrupter
UPS	Uninterrupted Power Supply
MSDS	Material Safety Data Sheet

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ADMINISTRATION

To check

TASK	Done?
Check that names of all the team members coming for the campaign have been submitted to NOVESPACE (team members, ground support staff, guests …).	
Check that names of expected flight operators or test subjects have been submitted and stated as flyers (including backup flyers).	
Check that each organization sending its employees to Novespace has signed an agreement protocol with Novespace.	
Check that the information forms have been signed by all team members coming to NOVESPACE (ground and flight staff).	
For ESA PFC only, check that the ESA terms & Conditions has been signed by all team members coming to NOVESPACE (ground and flight staff).	
Check that the flyer medical checks are valid.	
Check that the Principal Investigator has signed the last update of ESDP.	
Complete the Joint Risk Prevention Plan.	
Sign the Joint Risk Prevention Plan (signature by Principal Investigator or University Laboratory Director)	

To bring for the campaign

TASK	Done?
2 **signed** copies of your Joint Risk Prevention Plan.	
2 **signed** copies of your ESDP **at the last update**.	
2 copies of the MSDS of products that you'll be using on ground and in flight.	
A full set of user's manual or datasheet of the equipment and electrical devices of the experiment (hard copy, file or web link).	
Pictured ID.	
Health Insurance Card/Form, for experimenters from E.U.	
For a biomedical experiment, every test subject **must have**: - European health insurance card for EU Citizen (EHIC) - or copy of the French health insurance card (Carte Vitale)	

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LOGISTICS

To check

TASK	Done?
Check that shipment of the experiment is arranged: • From the lab to NOVESPACE and • From NOVESPACE to the lab	
Check that there will be one team member at NOVESPACE for take away of the experiment.	
Check that the delivery time and dates are compliant with NOVESPACE opening hours.	
Manage the deliveries if you need to receive specific supplies during the campaign (Dry Ice, gas refill, gas bottles…).	
Check that accommodation is booked.	
Check that transportation is organized (car rental). Note that between Bordeaux/Mérignac Airport and NOVESPACE there is a distance of 5km.	
Check the campaign schedule sent by NOVESPACE in regards with the arrival of all your team members.	
Prepare your team planning for the 2 weeks of campaign : • Estimated hour of arrival/departure of the team for each day, • Days of presence of the team in NOVESPACE premises.	

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TECHNICAL

To do on the experiment

TASK	Done?
Electrical	
Check that the electrical cable and vent line length is enough on your experiment in regard with the experiment layout in the cabin.	
Check that the 220V power cords are fitted with cable glands and that the main power plug has a 90° angled back shell to avoid protrusion from the aircraft electrical panel.	
Check that a single emergency stop pushbutton switched off all electrical sources.	
Check that the emergency stop pushbutton has a cable gland.	
Check that a 220V female plug is available, in order to allow to plug a GFI tester.	
Check that the correct terminal blocks are used (See GDL).	
Check that stranded wires are NOT used where it is requested to tighten these wires by means of screws.	
Measure the electrical consumption.	
Check the value of your fuses on the 220VAC and check the compliance with RQ and data provided in ESDP.	
Check the presence of a GFI adjusted at max 30mA.	
Check that the emergency stop button shuts down the entire experiment if pushed. Attention to be paid with equipment fitted with battery.	
Check that the emergency stop button cuts both phase and neutral power lines.	
Check the experiment grounding – max. resistance must not exceed 1 ohms.	
Check the quality (aspect) of the electrical system.	
Check that the wires, power cord, power supply and plugs are safely tightened on the rack.	
Check that the electrical connections are covered, protected and clamped.	
Check that all batteries are stated in the ESDP.	
Check that power supply powering heater or motor, are fitted with fuses.	
Check the general state of the 220V plug connectors.	
Check that the plug that will be used to connect the experiment to the plane is compatible with French electrical sockets (Type E)	

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Mechanical	
Check the fixation holes diameter (diam. 12mm) and distance between the fixations holes used for aircraft fixation. Check compliance with RQ and conformity with data provided in ESDP.	
Check that between the border of fixation holes and base plate border there is enough thickness (18mm<x<30mm)	
Check that the attachment base plate/ struts is compliant to the requirements (See GDL; screws attachment, size of the brackets, no welding, screws flush mounted...).	
Check that the experiment can be easily lifted by 4 persons max, adapt specific handlings equipment if necessary.	
Check all the screws used for the rack structure: they should be stopped by Nylstop nuts or stop washers.	
Check that all equipment fixation screws are reasonably stopped too.	
Check the tightening of all the screws.	
Check that no bent items (brackets…) are used to attach heavy devices.	
Check that all the devices are sufficiently attached (X, Y, and Z axis) .	
Check that there is no rust on your experiment.	
Check that no shatterable or flammable material is used for the experiment primary structure (wood, PMMA materials like Plexiglas…).	
For non primary structure of the experiment, the use of shatterrable product should be limited as much as possible. Please check that it at least protected against shocks.	
Weight the experiment including all equipment, liquids, gas bottle, …	
Check conformity of measured weight with data provided in ESDP.	
Check overall experiment dimensions of the final test setup.	
Check conformity with data provided in ESDP.	
Check the experiment size is compatible with the aircraft and loader doors dimensions for the loading 1.8m (max. height) x 1.07m (max. width) (pallet included)	
Measure height of the center of mass of the experiment (Z-axis) and check conformity with data provided in ESDP.	
Check the absence of welding, unless clearly stated in ESDP and agreed with NOVESPACE.	
Check that computer flat screens are mechanically stopped on each sides – use only of back screen thread is not compliant.	
Check that equipment are not piled up on each other.	
Check that base plate is fully flat and all screw head are flushed inside the base plate.	

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Laser	
Check that if any access door of the containment is open, it automatically stops the laser.	
Check that the warning red light turns on when laser is in use.	
Check that the test setup is fitted with standard laser placards.	
Pressurized systems	
Check the general state of the pressurized system.	
Check that the pressurized bottles and its manual valve: • have no spot of corrosion. • have not been damaged by shocks or scratches (deeper than 0.3mm)	
Check that the pressurized bottles and its manual valve have been certified less than 5 years ago.	
Check that the circuit is compliant with the ESDP.	
Check that the head of the gas bottles are shielded.	
Check that the flexible hoses and pressurized bottles are safely attached on the rack.	
Check the safety devices are set in places.	
Systems vibrating - Pumps	
Check that the systems used for decreasing the vibrations are efficient.	
Check that pumps are not lubricated with oil.	
Check that access is limited to pump hot parts or to moving parts.	
Systems electro-magnetic	
Measure the electro-magnetic fields on your experiment in its final state and check the conformity with data provided in ESDP.	
Batteries - UPS	
Check that the batteries are CE and not older than 3 years.	
Check that laptop batteries are not recalled by the manufacturer.	
Check that the UPS is CE and not older than 3 years. If the UPS is older than 3 years, but under 5 years, check that you have the maintenance logbook (See GDL).	
If using UPS, check that the Emergency Pushbutton of the experiment cuts off both input and outputs of the UPS.	
If using UPS, check that the main GFI trigger the UPS output off.	
Liquids and powders	
For experiments with fluids (or powder), check the tightness of your containments.	
For every product brought on site, check that liquid/material containers are labeled with : - The PI name - The standard mandatory information (risk pictograms, liquid name, ...)	
Heating system	
Check that the circuit is compliant with ESDP.	
Check that protections and thermal fuses are set in place.	
Camera on handrails	
Check that the fixation is compliant to the specifications of the ITF	

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Other	
Test the experiment when it's in its final state of assembly	
Check and repeat the flight procedures on the experiment in its final state and with the experimenters that will fly. Make sure these procedures are written and include the things and inspections to do the morning before the flight, in the flight before, during and after the parabolas, after landing. *You can replace the § 11 of the ESDP by your procedures and check list.*	
Check that the appropriate warning labels are affixed on experiment so as to be easily visible from everywhere (Laser, Toxic products…)	
Clean the experiment (no metallic chips)	
Check that the relevant Individual Protective Means are available (see MSDS and ESDP): safety shoes, lab coats, protection goggles, gloves …	
Check that all the Safety items mentioned in the ESDP are implemented and operative (GFi, ESB, pressure valves…)	

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To do on the ESDP

TASK	Done?
Check the remaining open questions.	
Check that the controls stated in Hazard Reports are implemented and efficient. Verifications should be closed in Hazards Reports.	
Check the overall conformity of the ESDP with the experiment: description, data, …	
For every product brought at NOVESPACE (ground or flight), check that they are listed in your ESDP and that the quantities stated are OK. This includes the products that you'll bring for finishing the assembly, for cleaning your experiment … (ethanol, silicon, glue…).	

To bring for the campaign

TASK	Done?
Prepare the foam and padding items that you'll use for protecting the experiment in the aircraft during the campaign. It must be foam complying with the following standards: M0 (NF EN13501-1) or class O (BS476)	
Prepare the spare parts and tools that you will need to finish your assembly or for repair. We strongly advice to bring : • Additional aluminium struts profile • Additional aluminium brackets • Electrical fuses • Backup equipment (pump, PC, ….) • Safety equipment *We advise you to bring spare parts in order to be able to replace damaged items, add padding and fixation on your experiment.*	
Prepare the Individual Protective Means requested by Hazard Reports (see ESDP) or good laboratory practices (lab coat, eyes protection, …)	
Safety Shoes.	
Bring AC adaptor for Standard Type E French socket for ground equipment.	
For experimenters that will be flying: Prepare sport shoes with flat, soft, light-colored and clean soles for the flights.	
Prepare an exhaustive list of the items and spare parts that you will want to bring with you during the flights. *This list will be requested during the Safety Visit (the day previous the first flight).*	

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